

REMARKS

Claim 8 has been amended as shown above. Support for the amendments can be found throughout the specification and claims as originally filed, in particular, page 13, line 18 to page 14, line 4. No new matter has been added. Claims 1-23 are pending.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned **“MARKED VERSION OF CHANGES TO THE CLAIMS.”**

Rejection of Claims 1, 12, 14, and 23 under 35 U.S.C. § 112

The Examiner has rejected claims 1, 12, 14, and 23 under 35 U.S.C. § 112 as containing subject matter which was not described in the specification in a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants respectfully disagree.

In paragraph 2 of the Office Action, the Examiner states that these claims now encompass “a metal oxide wherein the metal oxide has been size-reduced to a mean agglomerate particle size” and that there is no support in the specification for this limitation.

Support for the size-reduction limitation can be found on page 10, line 18 to page 11, line 8 and on page 11, line 14, to page 12, line 13. For example, page 10, lines 18-20 describe that the metal oxides “are preferably at least partially size-reduced meaning that the mean particle size of the metal oxide is reduced by at least 25% as a result of a comminution process.” In addition, page 11, line 18-20 describes that the metal oxide particles may be size-reduced by any method known to one skilled in the art, including methods such as grinding or milling. Page 11, lines 16-17 teaches that size-reduction eliminates the very large agglomerates and significantly reduces the mean particle size of the resulting fumed silica, which is a preferred metal oxide (see page 10, line 13). Furthermore, page 11, lines 5-6 describe that the preferred metal oxide particles are manufactured to have a mean particle size of less than about 25 microns. Finally,

page 14, lines 11-12 discloses that a size-reduced fumed silica that has been modified with hexamethyldisilazane is most preferred.

Therefore, Applicants believe that there is ample support for the limitations of claims 1, 12, 14, and 23 and respectfully request that the rejection of these claims be withdrawn.

Rejection of Claims 1, 12, 14, and 23 under 35 U.S.C. § 112

The Examiner has rejected claim 8 under 35 U.S.C. § 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants respectfully disagree.

In paragraph 4 of the Office Action, the Examiner states that the term “light” (line 2) in claim 8 is a relative term which renders the claim indefinite. The Examiner further states that the term “light” is not defined in the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The Examiner concludes that it is not known which specified hydrocarbons are envisioned as modifying agents in this claim.

Applicants have amended claim 8 by replacing the term “light” with the word “volatilizable”, as described above. Applicants believe that it would be apparent to one of ordinary skill in the art upon reading the specification that the term “volatilizable” refers to hydrocarbons that become volatile at temperatures used in the polymer cure step. Thus, the phrase “volatilizable hydrocarbons” has a definite meaning.

Applicants therefore believe that claim 8, as amended, is not indefinite and respectfully request that the rejection of this claim be withdrawn.

Rejection of Claims 1-23 under 35 U.S.C. § 103(a)

The Examiner has rejected claims 1-23 under 35 U.S.C. § 103(a) as being unpatentable over GB 2311527 in view of GB 2296915. Applicants respectfully disagree.

In paragraph 6 of the Office Action, the Examiner states that GB 2311527 (GB '527) discloses powder coating compositions comprising particles of thermosetting resin and 0.05 to 2.0 parts by wt per 100 parts by wt of said resin, of finely divided hydrophobic silica powder having a number av. particle size of 3 to 10 nm, that titanium dioxide and iron oxide are two metal oxides suitable for incorporation into this composition, and that the silica powder has been surface treated. The Examiner further states that, while GB '527 does not disclose (claimed) hexamethyldisilazane as the hydrophobing agent for treatment of metal oxide, GB 2296915 (GB '915) discloses surface-modified pyrogenically produced metal oxides comprising SiO₂ and modified with one or more compounds that are listed in the abstract, including silazanes. The Examiner concludes that it would have been obvious to use the silazanes of GB '915 as the modifying agent of choice in the composition of GB '527 with the expectation of achieving better flow and (thereby) coating having better performance.

The present application describes polymer compositions comprising at least one powdered polymer and a metal oxide. Claims 1-11 disclose a composition wherein the metal oxide has been size-reduced to a mean agglomerate particle size of less than about 25 microns. Claims 12-13 disclose a composition comprising the reaction product of fumed silica and hexamethyldisilazane, wherein the reaction product has been size-reduced to a mean agglomerate particle size of less than 10 microns. Claims 14-22 disclose a composition comprising the non-deammoniated reaction product of at least one metal oxide and hexamethyldisilazane, wherein the reaction product has been size-reduced to a mean agglomerate particle size of less than about 25 microns. Claim 23 discloses a composition comprising a flatting agent that is the non-deammoniated reaction product of fumed silica and hexamethyldisilazane, wherein the reaction product has been size-reduced to a mean agglomerate particle size of less than about 25 microns.

GB '527 does not teach or suggest a metal oxide with an agglomerate particle size of less than about 25 microns but instead discloses a powder coating composition comprising a finely divided hydrophobic silica powder having a number average particle size from 3 to 10 nm. The particle size referred to in GB '527 is not the agglomerate particle size but rather the primary particle size of the silica powder.

Particles of metal oxides, and especially silica, are aggregates made up of many adhered primary particles. These aggregates can combine to form agglomerates. The size of the primary particles (the primary particle size) and that of the agglomerates (the agglomerate particle size) are independent morphological parameters that cannot be correlated with each other. In GB '527, the particle size of the silica powder is the primary particle size. This is clearly shown on page 6, line 18 to page 7, line 6 of GB '527, which describes that "the finely divided hydrophobic silica powder must have a number average particle size of from 3 to 10 nm". An example of a silica powder which has this stated required parameter is AEROSIL R-812, and it is known in the art that this silica powder has a primary particle size of 7 nm. For example, the technical brochure "AEROSIL Fumed Silica" from Degussa, enclosed with this response, contains information on the manufacture, properties, and use of many of the AEROSIL products. The table entitled "Technical Data for AEROSIL Types" on pages 30-31 contains data on the properties of the standard types of AEROSIL. This table shows that the primary particle size of AEROSIL R-812 is 7 nm.

Since the finely divided hydrophobic silica powder of GB '527 must have a number average particle size of from 3 to 10 nm, and since AEROSIL R-812, a preferred silica powder having this property, is known to have a primary particle size of 7 nm, it is clear that the particle size referred to in GB '527 is the primary particle size and not the agglomerate particle size, as disclosed in claims 1-23 of the present application.

GB '915 discloses surface-modified pyrogenically produced metal oxides. However, there is no teaching or suggestion in GB '915 of a metal oxide having a mean agglomerate particle size of less than about 25 microns. Furthermore, neither GB '527 nor GB '915 teach or suggest a metal oxide that has been size-reduced.

Therefore, Applicants believe that claims 1-23 of the present application are patentable over GB '527 in view of GB '915 and respectfully request that this rejection be withdrawn.

Rejection of Claims 1-11 under 35 U.S.C. § 102(b)

The Examiner has rejected claims 1-11 under 35 U.S.C. § 102(b) as being anticipated by GB 2311527. In paragraph 8 of the Office Action, the Examiner states that disclosure of GB '527, which is summarized above, provides that the above claims lack novelty. Applicants respectfully disagree.

Claims 1-11 of the present application disclose polymer compositions comprising a metal oxide, wherein the metal oxide has been size-reduced to a mean agglomerate particle size of less than about 25 microns. As discussed above, GB '527 does not teach or suggest a metal oxide with an agglomerate particle size of less than about 25 microns but instead discloses a powder coating composition comprising a finely divided hydrophobic silica powder having a number average particle size from 3 to 10 nm. The particle size referred to in GB '527 is not the agglomerate particle size but rather the primary particle size of the silica powder. Furthermore, GB '527 does not teach or suggest a metal oxide that has been size-reduced.

Therefore, Applicants believe that claims 1-11 of the present application are not anticipated over GB '527 and respectfully request that this rejection be withdrawn.

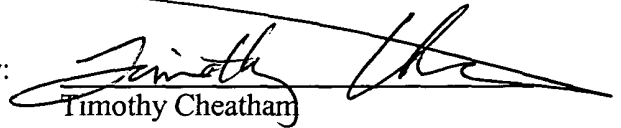
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Conclusions

This application is considered in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, that a telephone conference would further expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,

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MARKED VERSION OF CHANGES TO THE CLAIMS

IN THE CLAIMS

Please amend the claims as follows:

8. (Amended) The powder coating composition of claim 7, wherein the modifying agent is selected from [light] volatilizable hydrocarbons, ammonia, water, gases, and mixtures thereof.